

CLAIMS PENDING

1. (Previously Presented) A chemical vapor deposition process for the preparation of a single-wall carbon nanotube, comprising:

providing a methane gas composition and a supported iron-containing catalyst to a chemical vapor deposition chamber, and

decomposing the methane gas composition in the presence of the supported iron-containing catalyst, under a gas pressure of about 400 torr to about 600 torr and for a time sufficient to grow single-wall carbon nanotubes at a temperature from about 670° C to about 800° C.
2. (Original) A process of claim 1, wherein said temperature is from about 670°C to about 750°C.
3. (Original) A process of claim 1, wherein said temperature is from about 670°C to about 700°C
4. (Original) A process of claim 1, wherein said supported iron-containing catalyst is selected from the group consisting of: Al₂O₃/Fe/Mo/Co, Al₂O₃/Fe/Mo, Al₂O₃/Fe/Co, Al₂O₃/Fe, and mixtures thereof.
5. (Previously Presented) A process of claim 4, wherein the supported iron-containing catalyst is Al₂O₃/Fe/Mo catalyst, and wherein the catalyst has a molar ratio of Al₂O₃:Fe:Mo of about (10-20) : 1 : 1/3.
6. (Previously Presented) A process of claim 1, wherein said methane gas composition is methane or a mixture of methane and a carrier gas.

7. (Original) A process of claim 6, wherein said carrier gas is selected from the group consisting of: argon, nitrogen, helium, and mixtures thereof.
8. (Original) A process of claim 7, wherein said methane gas and said carrier gas are used in a ratio of about 1:1 by volume to about 1:10 by volume.
9. (Previously Presented) A chemical vapor deposition process for the preparation of single-wall carbon nanotubes, comprising:
- providing a methane gas composition and an $\text{Al}_2\text{O}_3/\text{Fe}/\text{Mo}$ catalyst to a chemical vapor deposition chamber, and
- decomposing the methane gas composition in the presence of the $\text{Al}_2\text{O}_3/\text{Fe}/\text{Mo}$ catalyst, under a gas pressure of about 400 torr to about 600 torr and for a time sufficient, to grow single-wall carbon nanotubes at a temperature from about 670°C to about 800°C ,
- wherein said single-wall carbon nanotubes have a diameter distribution ranging from about 0.7 nm to about 2.1 nm.
10. (Previously Presented) A process of claim 9, wherein the $\text{Al}_2\text{O}_3/\text{Fe}/\text{Mo}$ catalyst has a molar ratio of $\text{Al}_2\text{O}_3:\text{Fe}:\text{Mo}$ of about $(10-20) : 1 : \frac{1}{3}$.
11. (Original) A process of claim 9, wherein said temperature is from about 670°C to about 750°C .
12. (Original) A process of claim 9, wherein said temperature is from about 670°C to about 700°C .

13. (Previously Presented) A chemical vapor deposition process for the preparation of single-wall carbon nanotubes, comprising:

providing a methane gas composition and an $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}/\text{Mo}$ catalyst to a chemical vapor deposition chamber, and

decomposing the methane gas composition in the presence of the $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}/\text{Mo}$ catalyst, under a gas pressure of about 400 torr to about 600 torr and for a time sufficient, to grow single-wall carbon nanotubes at a temperature from about 680°C to about 800°C

wherein said single-wall carbon nanotubes have a diameter distribution ranging from about 0.7 nm to about 2.1 nm.

14. (Previously Presented) A process of claim 13, wherein the $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}/\text{Mo}$ catalyst has a molar ratio of $\text{Al}_2\text{O}_3:\text{Fe}:\text{Co}:\text{Mo}$ of about $(10-20) : 1 : 0.23 : 1/6$.

15. (Previously Presented) A process of claim 13, wherein the $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}/\text{Mo}$ catalyst has a molar ratio of $\text{Al}_2\text{O}_3:\text{Fe}:\text{Co}:\text{Mo}$ of about $(10-20) : 1 : 0.23 : 1/18$.

16. (Previously Presented) A process of claim 13, wherein the $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}/\text{Mo}$ catalyst has a molar ratio of $\text{Al}_2\text{O}_3:\text{Fe}:\text{Co}:\text{Mo}$ of about $(10-20) : 1 : 0.23 : 1/36$.

17. (Original) A process of claim 13, wherein said temperature is from about 680°C to about 750°C .

18. (Original) A process of claim 13, wherein said temperature is from about 680°C to about 700°C .